

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

112857-457

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Typed or printed
name _____

Application Number

10/540,237

Filed

July 19, 2005

First Named Inventor

Matsui et al.

Art Unit

2824

Examiner

Michael P. Lulis

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)☐ attorney or agent of record.
Registration number _____☒ attorney or agent acting under 37 CFR 1.34.Registration number if acting under 37 CFR 1.34 46,541

Signature

Thomas C. Basso

Typed or printed name

312-807-4310

Telephone number

February 11, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Matsui et al.
Appl. No.: 10/540,237
Conf. No.: 1612
Filed: July 19, 2005
Title: FUNCTIONAL MOLECULAR ELEMENT AND FUNCTIONAL MOLECULAR
DEVICE
Art Unit: 2824
Examiner: Michael P. Lulis
Docket No.: 112857-457

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Director of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Examiner:

This request is submitted in response to the Final Office Action dated October 9, 2007. This request is filed contemporaneously with a "Pre-Appeal Brief Request for Review" and a "Notice of Appeal."

Remarks begin on page 2 of this paper.

REMARKS

This Paper, Notice of Appeal, and Pre-Appeal Brief Request for Review are submitted in response to the rejections of claim 1-3, 6-8, 11-13, and 15-18 as maintained in the Final Office Action dated October 9, 2007. Applicants assert that the Examiner's decision to maintain the rejection in the Advisory Action of January 31, 2008 rises to the level of clear error and makes the case proper for pre-appeal review.

Claims 1-3, 6, and 7 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent Application Publication Number 2002/0040805 (hereinafter '*Swager*'). Claim 8 was rejected under 35 U.S.C. §103(a) as unpatentable in view of *Swager*. Claims 11-13 and 16-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Swager* in view of U.S. Patent No. 5,608,556 (hereinafter '*Koma*'). Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Swager* in view of *Koma* and U.S. Patent No. 4,109,241 (hereinafter '*Shanks*').

Rejections of Claims 1-3, 6 and 7 under §102(e)

In the Response dated January 9, 2008, herein incorporated by reference, Applicants have provided specific deficiencies of *Swager*, where features recited in independent claim 1 (as well as independent claim 11) were not taught or suggested. Specifically, *Swager* fails to teach altering the conductivity of a conjugated molecule by the action of a electric field, and fails to teach a conjugated molecule, a molecule with a permittivity anisotropy and/or dipole moment, and a metal ion complexed with the two molecules.

Applicants respectfully submit that *Swager* does not teach the limitation "by action of an electric field." This limitation was added to base independent claim 1 (and to independent claim 11) in the Response to first Office Action dated July 25, 2007. In the second Office Action, the Examiner failed to cite where *Swager* meets this limitation. The Examiner's only comment was in the Response to Arguments, in which he asserted that changing the orientation of a molecule by charge transfer is the same as "by action of an electric field" because charge transfer itself occurs by action of an electric field on a molecular scale. In the Response to Final Office Action, Applicants noted several deficiencies with this argument, which the Examiner has failed to consider. One deficiency is simply the common usage of the term charge transfer. Charge transfer requires a charge, e.g. a positive or negative ionization, to transfer from one molecule or atomic center to

another. That usage can be found in *Swager* at least at [0052], [0059-0062], and [0074]. Nowhere is an electric field discussed, and Applicants have been unable to otherwise identify a basis in *Swager* for the Examiner's interpretation.

Moreover, the Examiner's interpretation fails to consider how the Applicants own specification describes the limitation "by action of an electric field" as it relates to changes in orientation and conductivity. Specifically, molecules which have a permittivity anisotropy and/or dipole moment will align themselves in the presence of an electric field. The molecule's efforts to align an axis direction, *e.g.* the major axis direction for a positive permittivity anisotropy, with the orientation of the applied electric field effects a conformational change on the complex with the conjugated molecule, metal ion and molecule with permittivity anisotropy and/or dipole moment, in the absence of any ionization or charge transfer. In comparison, *Swager* provides no support for the phrase "by action of an electric field," particularly as that phrase is used and described by the Applicants.

Applicants also respectfully submit that *Swager* fails to teach a conjugated molecule and a molecule with permittivity anisotropy and/or dipole moment that form a complex with a metal ion. *Swager* does not teach or describe a complex as claimed. These concepts do occur within *Swager*, but *Swager* does not have all three together, does not teach putting the three together, and the Examiner has not indicated where he thinks that support exists. The Examiner seems to consider [0066], which describes a double stranded polymer attached by an intermediary species which could be a metal ion, as meeting these limitations in claim 1. However, [0066] teaches two polymers, one of which is a dielectric polymer. The dielectric polymers are then defined later in the specification as polyolefins, polyester, polyamides and the like. These descriptions do not teach a molecule with a permittivity anisotropy and/or dipole moment and therefore [0066] does not supply the limitations required by claim 1.

Because *Swager* neither provides support for the limitation of the complex of a metal ion, conjugated molecule, and molecule with permittivity anisotropy and/or dipole moment nor teaches changing the conductivity by action of an electric field, Applicants respectfully submit that the *Swager* does not anticipate claims 1-3, 6 and 7.

Rejection of Claim 8 under §103(a)

In the Response dated January 9, 2008, herein incorporated by reference, Applicants specifically explained how citation to *Swager's* claim 16 by the Examiner does not provide the support for silver as the metal ion in the complex between the conjugated molecule and the molecule with permittivity anisotropy and/or dipole moment. Specifically, *Swager's* claim 16, which depends from claim 15, only describes metal ions *in the nanoscopic pathway*, analogous to the conjugated molecule of the claimed invention, and not as a complex between the conjugated molecule and the molecule with a permittivity anisotropy and/or dipole moment. Again, it appears that the Examiner randomly selected the term that appeared in a prior art reference and asserted that it meets the limitation, despite the reality that the term or limitation is not used or does not act in a manner relevant to the term as it is used in the instant application and inventive claims. As such, *Swager* does not support the limitation of silver as a metal ion that forms a complex between the two molecules of the invention.

Rejection of claims 11-13 and 16-18 under §103(a)

In the Response dated January 9, 2008, herein incorporated by reference, Applicants have provided the specific deficiencies of *Swager* and *Koma*, reasons for why the two references should not be combined, and a demonstration that the combination, even if properly combinable, leads to a device which the Applicants have demonstrated does not function at the claimed device does.

Applicants respectfully submit that *Koma* and *Swager* are not properly combinable. The Examiner has asserted that the two inventions are from the same field of endeavor, devices using liquid crystals. Applicants disagree with this categorization of the field of endeavor and point out that the two references themselves describe different fields of endeavor. The field of endeavor in *Swager* relates to articles, devices, compositions and methods involving conduction pathways of nanoscopic thickness, including sensors for a variety of analytes. [0002] In comparison, the field of endeavor in *Koma* is a liquid crystal display (LCD), particularly a LCD that provides a wide viewing angle and high display quality. In reality, neither reference makes more than even a passing reference to liquid crystal molecules. *Koma* describes where the liquid crystal layer occurs, but gives no information regarding the liquid crystal molecules beyond that. *Swager* says even less: Out of approximately 15655 words, liquid crystal molecules are discussed in only 78 words.

Applicants further submit that, if even properly combinable, the combination of *Koma* and *Swager* does not make the claimed invention obvious for two reasons. First, *Koma* does not remedy the defects noted about in *Swager* because *Koma* does not teach or suggest the complex of metal ion, conjugated molecule, and the molecule with permittivity anisotropy and/or dipole moment, a limitation which was also missing in *Swager*. Second, the combination of *Swager* and *Koma* leads to a device that does not work. The most that *Swager* teaches about using liquid crystal molecules is their use as a dielectric that aligns the nanoscopic pathways for optimal isolation and positioning. Combining a liquid crystal layer as a dielectric and nanoscopic pathways into a device that has an external electric field as described in *Koma* leads to Comparative Example 1 of the instant specification – a device that shows no conductivity change due to the action of the electric field. Therefore, the combination of *Koma* and *Swager* should not cover the claimed invention.

In light of the above, the Applicant respectfully submits that the rejections of claims 1-3, 6-8, 11-13 and 15-18 are improper and should be reversed. Accordingly, the Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If any additional fees are due in connection with this application as a whole, the Commissioner is authorized to deduct such fees from deposit account no. 02-1818. If such a deduction is made, please indicate the attorney docket number (0112857-457) on the account statement.

Respectfully submitted,

BELL, BOYD & LLOYD LLP

BY



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